

U.S. Application No. 09/334,424
Reply to Office Action of March 7, 2006

PATENT
450100-4916

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1. (Currently Amended) An information transmitting apparatus which transmits a plurality of signals, said signals including at least video signals and audio signals, to an information receiving apparatus, said information transmitting apparatus comprising:

a plurality of encoding means for separately encoding each of said video signals and each of said audio signals;

first multiplexing means for multiplexing a plurality of pairs of encoded signals, each pair of encoded signals having one encoded video signal and one encoded audio signal;

second multiplexing means for multiplexing the multiplexed plurality of pairs of encoded video signals and encoded audio signals; and

control means for controlling a multiplexing ratio among the plurality of signals in the second multiplexing means, controlling a video data occupation bandwidth, an audio data occupation bandwidth, and a program data occupation bandwidth in relation to a transmission channel bandwidth,

wherein the information receiving apparatus reads contents of a program information data of a current program and a next program at a re-transmission cycle of the program information data of the current program and the next program, and recognizes a transmission status of the program information data indicating broadcast schedules, and

wherein said control means controls said multiplexing ratio to enable acquisition

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of program information in a reduced period of time by increasing transmission of program data when transmission of video data and audio data can be decreased.

2. (Original) The information transmitting apparatus according to claim 1, wherein the transmitting apparatus transmits the plurality of signals as a single transport stream.
3. (Original) The information transmitting apparatus according to claim 1, further comprising database means for providing data that relates to transmission rates of the plurality of signals at each time point, wherein the control means controls the multiplexing ratio while referring to the database means.
4. (Previously Presented) The information transmitting apparatus according to claim 1, wherein the control means controls an output rate of each of the plurality of encoding means.
5. (Previously Presented) The information transmitting apparatus according to claim 1, wherein the plurality of signals further comprise program information.
6. (Currently Amended) An information transmitting apparatus which transmits program information to an information receiving apparatus, said information transmitting apparatus comprising:
 - a plurality of video encoding means for encoding each video signal;
 - a plurality of audio encoding means for encoding each audio signal;

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program information data generating means for generating data of the program information;

first multiplexing means for multiplexing the data of the program information that is output from the program information data generating means with encoded video data that is output from the plurality of video encoding means and encoded audio data that is output from the plurality of audio encoding means in order to form pairs of multiplexed data;

second multiplexing means for multiplexing the pairs of multiplexed encoded video data, encoded audio data and data of the program information; and

control means for controlling a data output rate of each of the plurality of video encoding means, a data output rate of each of the plurality of audio encoding means, a data output rate of the program information data generating means, and a multiplexing ratio among the encoded video data, the encoded audio data, the data of the program information in the second multiplexing means, a video data occupation bandwidth, an audio data occupation bandwidth, and a program data occupation bandwidth in relation to a transmission channel bandwidth,

wherein the information receiving apparatus reads contents of a program information data of a current program and a next program at a re-transmission cycle of the program information data of the current program and the next program, and recognizes a transmission status of the program information data indicating broadcast schedules, and

wherein said control means controls said multiplexing ratio to enable acquisition of program information in a reduced period of time by increasing transmission of program data when transmission of video data and audio data can be decreased.

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7. (Currently Amended) An information transmitting method for transmitting a plurality of signals, said signals including at least video signals and audio signals, to an information receiving apparatus, said information transmitting method comprising:

an encoding step for separately encoding each of said video signals and each of said audio signals;

a first multiplexing step for multiplexing a plurality of pairs of encoded signals, each pair of encoded signals having one encoded video signal and one encoded audio signal;

a second multiplexing step for multiplexing the multiplexed plurality of pairs of encoded video signals and encoded audio signals; and

a control step for controlling a multiplexing ratio among the plurality of signals in the second multiplexing step, a video data occupation bandwidth, an audio data occupation bandwidth, and a program data occupation bandwidth in relation to a transmission channel bandwidth,

wherein the information receiving apparatus reads contents of a program information data of a current program and a next program at a re-transmission cycle of the program information data of the current program and the next program, and recognizes a transmission status of the program information data indicating broadcast schedules, and

wherein said control step controls said multiplexing ratio to enable acquisition of program information in a reduced period of time by increasing transmission of program data when transmission of video data and audio data can be decreased.

8. (Original) The information transmitting method according to claim 7, wherein the control step controls the multiplexing ratio while referring to data that relates to

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transmission rates of the plurality of signals at each time point.

9. (Previously Presented) The information transmitting method according to claim 7, wherein the plurality of signals are further comprise program information.

10. (Currently Amended) An information transmitting method for transmitting program information to an information receiving apparatus, said information transmitting method comprising:

a video encoding step of encoding each video signal of each of a plurality of video encoding means;

an audio encoding step of encoding each audio signal of each of a plurality of audio encoding means;

a program information data generating step of generating data of the program information;

a first multiplexing step of multiplexing the data of the program information that is output by the program information data generating step with encoded video data that is output by the video encoding step and encoded audio data that is output by the audio encoding step in order to form pairs of multiplexed data;

a second multiplexing step for multiplexing the pairs of multiplexed encoded video data, encoded audio data and multiplexed data of the program information;

a control step of controlling a data output rate of each of the plurality of video encoding means in the video encoding step, a data output rate of each of the plurality of audio encoding means in the audio encoding step, a data output rate of the program information data

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generating step, a multiplexing ratio among the encoded video data, the encoded audio data, and the data of the program information in the second multiplexing step, a video data occupation bandwidth, an audio data occupation bandwidth, and a program data occupation bandwidth in relation to a transmission channel bandwidth; and

an acquiring step of acquiring electronic program guide data, at the information receiving apparatus, only during a data transfer rate increase period,

wherein the information receiving apparatus reads contents of a program information data of a current program and a next program at a re-transmission cycle of the program information data of the current program and the next program, and recognizes a transmission status of the program information data indicating broadcast schedules, and

wherein said control step controls said multiplexing ratio to enable acquisition of program information in a reduced period of time by increasing transmission of program data when transmission of video data and audio data can be decreased.

11. (Currently Amended) A provider for providing a computer-readable program for causing an information transmitting apparatus which transmits a plurality of signals, said signals including at least video signals and audio signals, to an information receiving apparatus to execute a process comprising:

an encoding step for separately encoding each of said video signals and each of said audio signals;

a first multiplexing step for multiplexing a plurality of pairs of encoded signals, each pair of encoded signals having one encoded video signal and one encoded audio signal;

a second multiplexing step for multiplexing the multiplexed plurality of pairs of